love the hills, fear the abodes of men, and run as strongly as wild beasts. The natives call them autumn foxes. But, still, they are not invariably to be found." Although it is not yet known where the Lolo came from, Mr. Bourne gives a notion of their present habitat. In the great bend of the Yangtsze, in 103° E. longitude, between that river and the Anning, the Lolo are at home; there they live in independence of China, under their own tribal chiefs and aristocracy. Thence they extend in a scattered manner as far north as Wen chuan, in latitude 31° 15′ N., and longitude 103° 30′ E. To the west they extend to the Meikong; to the south they are found occupying here and there the higher ground, until the plateau breaks into the plain, and they extend eastward to Kweiyang. They seem to be more numerous as Taliang Shan, their present home, is approached, and they form much the largest part of the population of North-Eastern Yunnan and North-Western Kweichow. Mr. Bourne adds about thirty names by which different tribes of Lolo are known to the Chinese.

The Shans are not found north-east of the city of Yunnan, but they inhabit all the lower levels along the south Yunnan border; and from the city of Kwang-nan along Mr. Bourne's route to the frontier of Kweichow province, they form almost the whole population. They must have been masters of the Kwangsi province before the Chinese, as some of the Chinese official buildings in the province are said to have been erected on the sites of Shan palaces. It would be interesting, says Mr. Bourne, to know how the Shans reached Kwangsi, whether through Tonquin or across the Yunnan plateau. The Shans in Southern Kweichow are undoubtedly immigrants from Kwangsi, and did not cross the plateau. The Shan language is softer than Chinese or Lolo, with fewer gutturals and aspirates, and appears easy to learn. The numerals show a curious resemblance in sound to the Cantonese.

The Miao-tzse apparently are divided into a number of tribes speaking dialects of one language which is of the Chinese sort. They occupy at present Eastern Kweichow and Western Hunan, being very numerous in the south-east of the former province. They are known to the Chinese by a multitude of names, but always with the prefix Miao.

So far the appendix; but scattered throughout Mr. Bourne's elaborate report of his journey there are numerous interesting references to these non-Chinese races. Near Maling, in Southern Yunnan, on a tributary of the Yangtsze, he came on a sandstone bluff containing about twenty Mantzu caves. Most of the entrances, 3 to 4 feet square, are cut in the vertical cliff some 10 feet above the ground, so that they cannot be reached without a ladder. The face of the cliff is adorned in one or two cases by sculptures in relief, the most striking being a round human face. The valley was, no doubt, formerly the head-quarters of a Mantzu tribe, for some miles lower down the site of the castle of a chief is pointed out. The sculptured blocks that lie about bear witness to a considerable advance in civilization. The Lolos are described as having larger and more irregular features than the average Chinese; the colour of the skin seems much the same, but the eyes were deeper sunk. They are divided into three tribes, known as the black, white, and dry Lolos—a meaningless distinction, but corresponding apparently to a real tribal division. They believe in a future state of retribution, burn the dead, worship their ancestors with the sacrifice of an ox, and have no idols. Four pieces of brown paper were said to represent the potentialities of the other world, and three sticks of bamboo their ancestors. A special Lolo vocabulary, with the written characters, procured from a *perma*, or tribal sorcerer, in Ssu-mao, is carefully reproduced. This sorcerer was able to read his prayer-book, but not to explain what it meant. In his own opinion this was not important, as the ritual had been arranged between his ancestors and the gods, who knew very well what was meant so long as he read the right section and gave the characters their proper sound.

The Report it should be added contains numerous and comprehensive tables of meteorological observations and levels, although the rate of travelling prevented anything like a running survey being made.

THE BATH MEETING OF THE BRITISH ASSOCIATION.

THIS will be the fifty-eighth meeting of the British Association for the Advancement of Science. Twenty-four years ago—in 1864—the Association met at Bath under the presidency of the late Sir Charles Lyell. So many other names are now missing, that the retrospect is the reverse of cheering. Sir Roderick Murchison, Admiral Fitzroy, Dr. Whewell, Sir John F. W. Herschel, Sir David Brewster, Dr. William Farr, Prof. Fawcett, Dr. Livingstone, Capt. Maury, and Mr. Scott Russell, are only a very few of the numerous names of note that spring to the memory in connection with the last Bath meeting.

But if this is the retrospect, the prospect is in every way most satisfactory. Under the genial presidency of Sir Frederick Bramwell, with the aid of very efficient local officers, a thoroughly successful meeting may fairly be looked for. Bath has the advantage of a good position for railway facilities. It is not more than 2½ hours from London, 2 from Exeter, 1½ from Cardiff, 1½ from Birmingham, and 5½ from Manchester. The endeavours of the Local Executive Committee to obtain the issue of cheap tickets, as usual, have been crowned with success. As Bath—strangely enough—does not possess a Public Hall, a temporary building, to serve as reception-room and offices, is in course of erection, at a cost of some £700. The President's address, the evening discourses, and Sir John Lubbock's lecture to working men will be given in the Drill Hall.

It is unnecessary to say anything as to the fitness of Sir Frederick Bramwell for the office of President. The following are the Presidents of the Sections:—Mathematics and Physics, Prof. Schuster; Chemistry, Prof. Tilden; Geology, Prof. Boyd Dawkins; Biology, Mr. Thiselton Dyer; Geography, Sir Charles Wilson; Statistics, Lord Bramwell; Mechanics, Mr. Preece; Anthropology, General Pitt-Rivers.

Bath itself is so well known as to need very few words. The old Roman Bath and its adjuncts, recently uncovered, with other remains, will of course excite general interest. Attention will also be given to the new buildings erected by the Corporation to meet the increasing demand for the Bath waters. On every side the city is surrounded by objects that will interest the geologist, the archæologist, and the lover of the picturesque. Provisional arrangements have been made for a set of excursions—half-day, on Thursday, September 6, and whole day on Saturday, September 8—to Stantonbury, Stanton Drew, Maes Knoll; Dyrham, Sodbury Camp, Bannerdown; Stourton, Pen Pits, Whitesheet, Longleat; Frome, Wells, Glastonbury, Cheddar, Chepstow, Tintern, Box Quarries, Cirencester, Severn Tunnel, Tytherington, Thornbury, Berkeley, Ebbor Gorge, Wookey, and elsewhere.

PROF. H. CARVILL LEWIS.

THE loss to the geological world by the death of Prof. Henry Carvill Lewis at the early age of thirty-four, and in the midst of his work, is greater than they may realize, as the more important of his results acquired during the last three years have not been fully published. When, in 1882, he began to study the glacial phenomena of

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Pennsylvania, though numerous observations had been made on the direction of the striæ and the location of the moraines, in the northern part of the States, nothing had been attempted towards gathering the results into a consistent whole, or tracing the limits of the glaciation. In that year he succeeded in tracing a great terminal moraine from New Jersey to the Ohio frontier, and showing that beyond this line glaciation was absent, while within it the direction of the motion could be traced as well by the striæ as by the derivation of the boulders. Of the truth of these views he succeed in convincing almost all the American geologists who had studied the question. Fired by his success in interpreting the glacial phenomena of his native country, and believing that the same key might be found to unlock the mysteries of European glaciation, he practically threw up his position in Philadelphia, and devoted himself to the study of these phenomena in Great Britain. Devoting his summers from 1885 to the work, he visited—accompanied by his wife, whose active assistance he constantly enjoyed—almost every locality in Great Britain and Ireland where striæ had been recorded or moraines were likely to occur. To reduce the whole of the previous observations to order was a task he had not yet succeeded in completing, but which he boldly undertook, and to continue which he had once more landed in England. Important results were, however, already obtained, and at the British Association last year he gave English geologists the firstfruits, by presenting them with a map of England in which he had traced a great terminal moraine, as in America, on the north of which the striæ and the dispersion of the boulders indicated a continuous ice-sheet, while to the south the various glacial deposits were accounted for by extra-morainic lakes. He boldly advocated the view of the ice mounting up to the heights of 1100 feet in Moel Tryfaen and elsewhere, where the ice-sheet had crossed the sea, declaring that anyone who was acquainted, as he was, with the far greater results of ice-motion in Pennsylvania would have no difficulty in accepting this, and pointing out that these localities were everywhere on the line of the great terminal moraine. So startling a generalization could scarcely be accepted all at once, and there were many things to account for before the history even of this greatest ice-sheet could be considered complete. Had Prof. Lewis been spared to us, he was prepared to devote himself to the completion of this work. He has left a large mass of notes and drawings bearing on it, which must now wait for some Elisha capable of taking up his mantle. Every glacialist is no doubt more or less satisfied with the account he can give of the glacial history of his own district; but to the general geologist the whole has hitherto presented a chaos of conflicting histories, fit only to bewilder him. In the clear account given by Prof. Carvill Lewis of one great portion of that history, light seemed at last to dawn, and the hope was raised that glacial chaos would cease. This hope now seems quenched for a time.

Prof. Lewis was born in Philadelphia, November 16, 1853, and took his B.A. degree in 1873 in the University of Pennsylvania. From 1879 to 1884 he was a volunteer member of the Geological Survey of the State. In 1880 he was elected Professor of Mineralogy in the Academy of Natural Sciences, Philadelphia, and in 1883 Professor of Geology in Haverford College. His work was by no means confined to his glacial studies, the most important of his minor works being the discovery of the matrix of the diamond in an ultra-basic volcanic rock in contact with a carbonaceous tuff. The prediction that, if such was the origin of diamonds, they might be found in meteorites, had just been fulfilled in Russia; and he had lately visited a locality in Carolina, where the same conditions obtain, but had not proceeded further when he was stopped by death. During the last three years he spent his winters in Heidelberg, studying microscopic petrography with Prof. Rosenbusch.

Those who knew him personally, were charmed with the beautiful frankness of his nature, his love of truth, his invariable possession of a reason for what he said, and his total lack of pride or assumption of authority. They saw in him a type of what a genuine student of Nature should be, tempered and refined by general culture. Few who knew him at all but must feel they have lost a friend, and an example.

He married in 1882, and leaves a wife and one daughter.

*SONNET**

TO A HIGH SOPRANO

Accompanying herself on the Piano.

THE larks who sing at Heaven's high gate despair
To match thy notes so piercing-sweet and true
That, pure as in night's hour fresh-fallen dew,
Vouch thou art good, e'en as thou art most fair.
Why seek with gems to deck thy radiant hair,
Thy flashing, rushing, fingers to indue
With rubies' blaze or Opal's orient hue—
Thou canst in nobler wise thy worth declare.
Oft shall the rapt enthusiast in his cell
Intent on Nature's all-pervading clue
Pause, to bid Memory with her magic spell
Restore that heavenly, loved, lithe form to view
And in fond fancy hear thy voice anew
Till life to gladness breathes its last farewell.

New College, Oxford, July 20. J. J. S.

NOTES.

THE annual meeting of the British Medical Association was opened at Glasgow on Tuesday, the 7th inst. Prof. Gairdner, the President, delivered an address on "The Physician as Naturalist." Speaking of the methods of education necessary for the training of a physician, Prof. Gairdner urged that medical students do not at present receive adequate instruction in physics. "When we consider," he said, "how completely modern science has demonstrated the subordination of living bodies and physiological processes, not to a wholly detached set of laws termed vital, but to all the most elementary laws of matter; and, further, the correlation of all the physical forces throughout the universe, so that the living body and its environment act and react on each other throughout infinite space and time, it will be readily admitted, I think, that some kind of systematized instruction in physics, and not a mere elementary examination in mechanics, should be an essential part of an education with a view to the medical profession. And when we further consider that most of the great advances in medical diagnosis in the present day, through the stethoscope, microscope, laryngoscope, ophthalmoscope, sphygmograph, electricity as applied to muscle and nerve, &c., involve applications of pure physics which are neither remote from practice nor yet very easily mastered by the beginner; and that, in the case of electricity and other physical reagents, even heat and cold, &c., we are every day extending the domain of these sciences in therapeutics, and still more perhaps in preventive medicine and sanitary science, their claim for an extended recognition in teaching seems to be enormously enhanced. I am persuaded that in a very few years the physical laboratory will become an absolutely essential preliminary step in the education of the physician of the future, and that those who have not undergone this training will be hopelessly distanced in the race."

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* In the next number of NATURE will appear the Original of this sonnet addressed
To a Young Lady with a Contralto Voice.

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